

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A ~~fixed material~~medium transportation apparatus

comprising:

a sucking unit including a ~~fixed material~~medium transportation surface on which a plurality of sucking holes are formed, a decompression chamber communicating with the sucking holes and a sucking device for sucking air in the decompression chamber;

a delivering device for ~~adsorbing sucking~~ a ~~fixed material~~medium supplied onto the ~~fixed material~~medium transportation surface of the sucking unit onto the ~~fixed material~~medium transportation surface through the sucking hole by the sucking device, and delivering the ~~fixed material~~medium from an upstream side of the sucking unit to a downstream side thereof,

wherein each of the sucking holes of the sucking unit is formed by a through hole section communicating with the decompression chamber and a sucking chamber having a larger area of a sucking surface opposed to the ~~fixed material~~medium than a sectional area of the through hole section, and

wherein a side edge of said sucking chamber is provided with a slant face.

2. (currently amended) The ~~fixed material~~medium transportation apparatus

according to claim 1, wherein each of the sucking chambers includes a concave portion formed

onto the ~~fixed material~~medium transportation surface and the sucking chambers are mutually partitioned by partition walls.

3. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 2, wherein the concave portion is partitioned and formed by the partition walls in a main scanning direction and a subscanning direction of the transportation apparatus,
wherein the subscanning direction is a transportation direction of the medium, and the main scanning direction is orthogonal to the transportation direction.

4. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 2, wherein each of the sucking chambers has a sucking surface formed by an almost rectangular concave portion.

5. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 1, wherein each of the sucking chambers has a sucking surface formed by an almost circular concave portion.

6. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 4, wherein a width of a top of the partition walls is smaller than a dimension of one side or a diameter of the sucking surface of the sucking chamber.

7. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 4, wherein a top of the partition walls is formed linearly with an area of approximately zero.

8. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 4, wherein a top of the partition walls in at least ~~the~~a main scanning direction is formed linearly with an area of approximately zero,
wherein the main scanning direction is a direction orthogonal to a transportation direction of the medium.

9. (currently amended) A liquid fixing apparatus comprising the ~~fixed~~
materialmedium transportation apparatus according to any of claims 1 to 8.

10. (currently amended) A sucking unit comprising:
a sucking and holding section provided with a plurality of sucking holes;
a decompression chamber formed integrally with the sucking and holding section and communicating with the sucking holes, and
a sucking device for sucking air in the decompression chamber,
wherein a ~~fixed material~~medium supplied onto the sucking and holding section is ~~adsorbed~~sucked onto the sucking and holding section by the sucking device through the sucking holes,

wherein each of the sucking holes is formed by a through hole section communicating with the decompression chamber and a sucking chamber in which an area of a sucking surface opposed to the ~~fixed material~~medium is larger than a sectional area of the through hole section, and

wherein a side edge of said sucking chamber is provided with a slant face.

11. (currently amended) A ~~fixed material~~medium transportation apparatus for adsorbing sucking and delivering a ~~fixed material~~medium supplied onto the ~~fixed material~~medium transportation surface,

wherein the ~~fixed material~~medium transportation surface is provided with a ~~dimple~~ a plurality of sucking chambers, each of which has a bottom surface and a pair of slant faces located on opposite sides of said bottom surface, said sucking chambers being configured such that a space (h) between the adjacent sucking chambers, a distance (i) of one of said slant faces, a distance (j) of said bottom surface and a distance (k) of the other of said slant faces are equal to one another so as to be capable of absorbing an improper state by a wrinkle generated in the ~~fixed material~~medium.

12. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 11, wherein the ~~dimple~~ plurality of sucking chambers are formed corresponding to an extension rate of the ~~fixed material~~medium.

13. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 11, wherein the ~~dimple is~~ plurality of sucking chambers are formed corresponding to a shape of a wrinkle generated on the ~~fixed material~~medium.

14. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 11, wherein a regulating device for regulating a shape of a wrinkle generated on the ~~fixed material~~medium is provided on an upstream side of transportation from the ~~fixed material~~medium transportation surface.

15. (canceled).

16. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 11, further comprising: a sucking unit including a plurality of sucking holes provided on the ~~fixed material~~medium transportation surface, a decompression chamber communicating with the sucking holes, the sucking holes communicating with the decompression chamber and a sucking device for sucking air in the decompression chamber, wherein each of the sucking holes corresponds to each of the plurality of sucking chambers, includes at the plurality of sucking chambers having a larger area of a sucking surface opposed to the ~~fixed material~~medium than a sectional area of the sucking hole, so that the sucking chamber functions as the dimple.

17. (currently amended) A liquid fixing apparatus comprising the fixed materialmedium transportation apparatus according to any of claims 11 to 14 and 16.

18. (currently amended) A fixed materialmedium transportation apparatus for adsorbing sucking and delivering a fixed materialmedium supplied onto a fixed materialmedium transportation surface, comprising:

a dimple provided inwherein the fixed materialmedium transportation surface is provided witha, the dimple having a depth changed in a transportation direction of the fixed materialmedium,

a sucking unit including a plurality of sucking holes provided on the medium transportation surface,

a decompression chamber communicating with the sucking holes and the sucking holes communicating with the decompression chamber, and

a sucking device for sucking air in the decompression chamber,
wherein each of the sucking holes includes a sucking chamber having a larger area of a sucking surface opposed to the medium than a sectional area of the sucking hole, so that the sucking chamber functions as the dimple.

19. (canceled).

20. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 1918, wherein the sucking chamber is formed such that a depth is gradually increased from an edge on an upstream side in a transportation direction of the ~~fixed material~~medium to the sucking hole.

21. (currently amended) A liquid fixing apparatus comprising the ~~fixed material~~medium transportation apparatus according to any of claimsclaim 18 to 20.

22. (currently amended) A ~~fixed material~~medium transportation apparatus comprising a sucking unit for sucking and holding a fixed material and a delivering device for delivering the fixed material from an upstream side of the sucking unit to a downstream side thereof,according to claim 1,

~~the sucking unit having a fixed material transportation surface provided with a plurality of sucking holes, a decompression chamber communicating with the sucking holes and a sucking device for sucking air in the decompression chamber,~~

~~the fixed material supplied onto the fixed material transportation surface of the sucking unit being adsorbed onto the fixed material transportation surface through the sucking hole by the sucking device during fixing a liquid by the delivering device and being delivered from an upstream side to a downstream side,~~

wherein a hard porous material is provided in a position corresponding to a ~~fixed material~~medium edge section of the ~~fixed material~~medium transportation surface.

23. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 22, wherein a hard porous material is provided in positions corresponding to widths of various papers of the ~~fixed material~~medium.

24. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 22, wherein the hard porous material is provided to be extended in a lateral direction of the ~~fixed material~~medium.

25. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 22, wherein the hard porous material is removably attached to the ~~fixed material~~medium transportation surface.

26. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 22, wherein an absorbing material is provided on an underside of the hard porous material.

27. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 22, wherein a lower part of the hard porous material communicates with a decompression chamber.

28. (currently amended) A liquid fixing apparatus comprising the ~~fixed material~~medium transportation apparatus according to any of claims 22 to 27.

29. (currently amended) A ~~fixed~~materialmedium transportation apparatus comprising:

a ~~fixed~~materialmedium transportation surface on which a ~~fixed~~materialmedium is sucked and transported,

a sucking chamber formed on the medium transportation surface extending in a transportation direction substantially from an upstream end to a downstream end of the medium transportation surface; and

a plurality of sucking holes formed in the sucking chamber,
wherein a chamfer is provided in at least one of an air inlet portion and an air outlet portion in ~~a~~each sucking hole formed on the ~~fixed~~materialmedium transportation surface.

30. (currently amended) The ~~fixed~~materialmedium transportation apparatus according to claim 29, wherein a chamfered surface of the air inlet portion of the sucking hole is a rounded surface.

31. (currently amended) The ~~fixed~~materialmedium transportation apparatus according to claim 30, wherein a radius of the rounded surface ranges from 0.2 mm to 1 mm.

32. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 29, wherein a chamfered surface of the air outlet portion of the sucking hole is a ~~taper~~tapered surface.

33. (currently amended) The ~~fixed material~~medium transportation apparatus according to claim 32, wherein a taper of the ~~taper~~tapered surface has an opening angle ranging from 60 degrees to 90 degrees and an axial length ranging from 1 mm to 2 mm.

34. (currently amended) A liquid fixing apparatus comprising the ~~fixed~~
~~material~~medium transportation apparatus according to claim 29.

35. (new): A medium transportation apparatus comprising:
a medium transportation surface on which a medium is sucked and transported;
a plurality of sucking chambers aligned to a transportation direction of the medium on said transportation surface, wherein a sucking hole is formed in substantially a center of each of said sucking chambers;
wherein a side edge of said sucking chamber is provided with a slant face.

36. (new) A medium transportation apparatus comprising:
a medium transportation surface on which a medium is sucked and transported;

a sucking chamber formed on the medium transportation surface extending in a transportation direction of the medium substantially from an upstream end to a downstream end of the medium transportation surface; and

a plurality of sucking holes formed in the sucking chamber,

wherein a side edge of said sucking chamber is provided with a slant face.